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Open Access Research Trends on Hantavirus: A Scientometric Analysis based on Scopus Database

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Abstract

This study was an attempt to analyze the open access global research trends on "Hantavirus" research during 2009-2019 on the base of the Scopus Database. To understand the research trend of scientific publication on Hantavirus for the period 2009 to 2019, this scientometric study was carried out depending on different scientometric indicators such as: Annual Growth of Publication (AGR), Relative Growth of Publication (RGR), Doubling Time, Productive country, author and institution, collaboration among authors, countries and institutions, citation pattern etc. A total of 1023 records were extracted from the Scopus database, after excluding the duplicate records, total 1021 records were taken for the analysis and the selected data were analyzed using different scientometric tools. From the study, it is found that the year 2019 has the highest contribution with total 148 (14.5%) numbers of publications on Hantavirus research. Vaheri A. is the highest contribution author with total 42, (4.11%) publications followed by Vapalahti O. and Yanagihara R. with total 30, (2.94%) of publications. The United States is in the 1st position with highest number of 361, (35.36%) publications during the period taken here for study followed by China with 129, (12.63%) total publications. Hantavirus, article, human, humans, nonhuman, animals are the commonly used keywords on Hantavirus research.

Keywords: Scientometric, Bibliometric, Research trend, Publication, Hantavirus, Annual Growth Rate, Relative Growth Rate

1. Introduction

Research publications are the representation of the scholarly contributions of academic or researcher community to a subject or to the any other sub-fields of a particular subject area. Generally, it is very much tough to assess the research trends manually from the total collection

of the research work published in a specific field. Bibliometric and Scientometric are the most effective tools for evaluating the research trends of any subject field of Publications, authors, Sources, Countries etc. The Modern method of bibliometric and Scientometric analyzed the research trends, Collaboration Network of authors, countries and institutions, citation network of authors, countries and institutions etc. This study aims to analyze the open access research trends on "Hantavirus" research during the year 2009-2019 in global perspective based on the Scopus Database.

The mode of publication undergoing changes from print to electronic. Because of this electronic environment, more and more articles have been published over the web because of its wide audience and easy accessibility. To bridge the gap between information rich and poor community we need peer reviewed, scholarly content which can ensure about the authentic information. Some of the academicians demanded that research work should be made available through public domain. Open access literature is digital, free of charge, online and free of most copyright and licensing restriction. It exists where there is a free, immediate and unrestricted availability of digital content. Because of its accessibility, it is expected to be read more than the subscribed journals and thus having higher impact rates. Open access not only provided free access to the entire citizen, but also helps to bridge the community gape of the society by providing free access to knowledge for the unprivileged communities. Open Access' is a free access to knowledge at no charge to the user. Open access deals with free access and reuse of scholarly work in a digital environment. According to Peter Suber (2012), "Open access literature is digital, online, free of charge and free of copyright and licensing restriction". It helps to remove the barriers that hinder us from knowledge that is high price and copyright. (Das, 2018)

Hantaviruses are the large group of viruses that is carried by the rodents and some Hantavirus can cause deadly diseases in human body worldwide. People can be affected by breathing dust contaminated by rodent droppings, urine or saliva. This virus also can be spread by direct contact. Hantaviruses have the potential to cause two different types of diseases in human: hemorrhagic fever with renal syndrome (HFRS) and Hantavirus Pulmonary Syndrome (HPS). Hantaviruses in the Americas are known as "New World" Hantaviruses and may cause Hantavirus Pulmonary Syndrome (HPS). Other Hantaviruses, known as "Old World"

Hantaviruses, are found mostly in Europe and Asia and may cause Hemorrhagic Fever with Renal Syndrome (HFRS). (Bi et al., 2008)

2. Review of Related Literature

The present scientometric study has been carried out to analysis the open access research trends on Hantavirus during the year 2009 to 2019 based on Scopus database. There have been conducted a number of scientometric studies on different areas by different authors from different field. For conducting the present study, there have been gone through a numbers of related studies. Some of the similar studies have been brought out in the literature review are as follows:

Abdullah & Timan, (2010) in their article, uses bibliometrics approach to analyze the growth and characteristics of academic publication in the three open access journals with the title Knowledge Management during 2003-2008. From the analysis they found that there were total 3 main areas contribute to KM literature- 1) KM Theory and Practice 2) Business Process and Management, and 3) Information Communication and Technology. There were total 184 papers of 350 Authors from 46 different countries, of which the majority are in Europe, US, Australia, and Canada.

Agrahari et al., (2020) analyzed the research progress on Bamboo for a period of 29 years i.e. from 1989 to 2018. They found a positive growth in the research of bamboo and review article while very sharp decrement was also observed. Agriculture, Material Science, building technology and chemistry were the top contributing subject areas. India was the most productive country of the world followed by china and Tamilnadu was most productive state of India.

Antelman (2004) in the article "Do open-access articles have a greater research impact?", looked at the articles in four disciplines at varying stages of adoption of open access—philosophy, political science, electrical and electronic engineering and mathematics—to see whether they have a greater impact as measured by citations in the ISI Web of Science database when their authors make them freely available on the Internet. The finding is that, across all four disciplines, freely available articles do have a greater research impact. Shedding light on this category of open access reveals that scholars in diverse disciplines are adopting open-access practices and being rewarded for it.

Das (2018) in her article studied the use of open access journals by the research scholars of Gauhati University. The study reveals that the awareness of open access publication among the research scholars of Gauhati University is below average. Most of the research scholars have confusion about the actual meaning of open access. Most of the researchers have shown interest to publish their articles in open access journals showing their support for the movement of open access publication.

Dutta & Nikam, (2016) in their study analyzed the research on solar cell in India for a period of 20 years from 1991 to 2010 based on Web of Science indexed data. . From the study, it is observed that solar cell research in India received an impetus during 2001-2010 and the academic institutions contributed about half of the total output. This study revealed that emphasis was being given to research on solar cells based on materials other than silicon.

Rathika & Thanuskodi, (2020) analyzed the Library and Information Science research publications during 2009-2018 based on Scopus database. From their study, it is observed that the year 2018 was the most contributing year followed by the year 2016. The journal Library Philosophy and Practice 700 (3.50%) Occupy the first position by contributing 700 (3.50%) articles. The Study also shows the publications published in different type of documents during 2009-2018. Articles has the highest share with 14229 (71.15%) Publications followed by Conference Paper 2857 (14.29%) in the 2nd position.

Sudarsana & Baba, (2019) carried out a scientometric analysis of global nuclear fuel research during 2000 to 2017 based on different scientometric indicators. They selected total 7,042 bibliographic records extracted from the Web of Science core collection database. In their study, it is observed that the half of the total publication (4166, 56%) articles were published during 2011 to 2017 and the year 2017 had the highest numbers of publication. USA followed by France, South Korea and Germany were the top contributing countries. A significant contribution was there from Korea Atomic Energy Research Institute.

3. Research Objectives

This study focuses on to accomplish the following objectives:

1) Analyze the research trends on all the Hantavirus related open access publication during the year 2009 to 2019 indexed in Scopus database.
2) Analyze the year wise distribution of publication, Annual Growth Rate (AGR), Relative Growth Rate (RGR), Doubling time of publication on open access Hantavirus research work.
3) Determine the most productive country, author, Institution etc on open access Hantavirus research work.
4) Determine the highly cited document, author and country on open access Hantavirus research work.
5) Determine the highly occurred keywords on open access Hantavirus research work.

4. Methodology

This study is totally based on the open access research publication related to the topic "Hantavirus" during the year 2009-2019, which are indexed in the Scopus database (http://www.scopus.com), an international online bibliographic database of peer-reviewed scientific literature owned by Elsevier. The raw data was extracted from the Scopus on 1st October 2020. Thus, the record not included in the database till the mentioned date is likely to be missed.

The search string for collecting the raw data was:
TITLE-ABS-KEY ("Hantavirus") AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013) OR LIMIT-TO (PUBYEAR , 2012) OR LIMIT-TO (PUBYEAR , 2011) OR LIMIT-TO (PUBYEAR , 2010) OR LIMIT-TO (PUBYEAR , 2009)) AND (LIMIT-TO (ACCESSTYPE(OA)))
A total 1023 publications were counted on the Scopus database. However, for maintaining the quality of the study, all duplications were checked thoroughly with the help of MS-Excel and after excluding the 2 duplicate records, the rest 1021 records were selected for the analysis. The selected data were analyzed and tabulated using MS-Excel sheet and evaluated with the help of different scientometric tools to fulfill the objectives of the study.

5. Data Analysis and Discussion

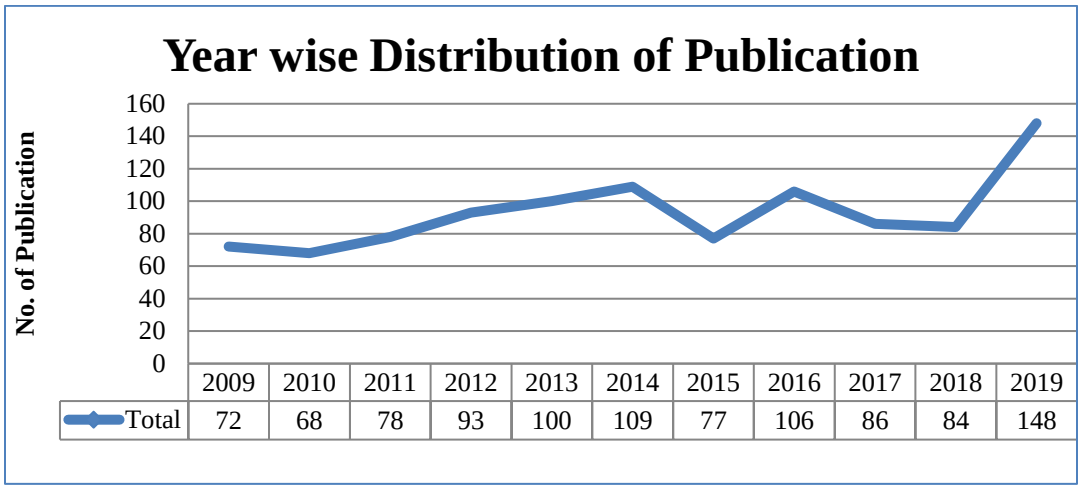
5.1 Year wise Distribution of Publication

The year wise distribution of open access publications on Hantavirus research during the period 2009-2019 is shown in the table 1 and Figure 1. The range of the articles published per year throughout the time of study between 68 and 148. From the Table 1 and the Figure 1, it is observed that during the year 2010 to 2014, the open access publishing publishing trend on Hantavirus started to increase rapidly i.e. from 68, (6.66%) publications to 109 (10.68%). This research during this span of study reached a peak in 2019 with 148 publications (14.5%) followed by 109 publications (10.68%) in the year 2014, and the lowest 68, (6.66%) publications were published in the year 2010 of the period of study.

Table 1: Year wise Distribution of Publication

Year	No. of Publication	Share (%)	Cumulative (%)
2009	72	7.05	7.05
2010	68	6.66	13.71
2011	78	7.64	21.35
2012	93	9.11	30.46
2013	100	9.79	40.25
2014	109	10.68	50.93
2015	77	7.54	58.47
2016	106	10.38	68.85
2017	86	8.42	77.28
2018	84	8.23	85.5
2019	148	14.5	100
Total	1021		

Figure 1: Year wise Distribution of Publication



5.2 Annual Growth Rate

The growth rate is a measurement which is essential in any field. In meaning the growth of the number of publications in a particular discipline, this is often a measure of the annual increase or decrease. Annual growth rate (AGR) is the change in the value of a measurement over the period of a year **(**Velmurugan & Radhakrishnan, 2016). Here, the AGR has been determined as per the formula given below:

AGR = End value – First value / First value * 100

The table 2 provides the annual growth rate of publications for the period 2009 to 2019. From the table 2, it is clear that the maximum AGR 76.19% was recorded in the year 2019, followed by 37.66% and 19.23% AGR which were recorded in the year 2016 and 2012 respectively. It indicates that negative change of -29.36% was recorded in the year 2015, which is the lowest AGR between the years taken for the study.

Table 2: Annual Growth Rate

Year	No of Publication	AGR (%)
2009	72	0
2010	68	-5.56
2011	78	14.71
2012	93	19.23

2013	100	7.53
2014	109	9.00
2015	77	-29.36
2016	106	37.66
2017	86	-18.87
2018	84	-2.33
2019	148	76.19

5.3 Relative Growth Rate and Doubling Time of Publication

Table 3 shows the relative growth rate and doubling time of open access publication on Hantavirus research during the period 2009-2019. The growth rate of all the publications have been measured on the basis of RGR and Dt model, the particular model is developed by Mahapatra (Mahapatra, 1985). RGR is calculated to analyze the increase in the number of publications on time and the Dt is directly related to RGR. The mathematical representation of the mean relative growth rate of articles over a specific period is derived from the following formula.

R or RGR = W2- W1 / T2 –T1

Where,

R = Growth Rate over the specific period of the interval

W1 = Loge (natural log of the initial number of contributions)

W2 = Loge (natural log of the final number of contributions)

T1 = The unit of initial time

T2 = The unit of final time

Doubling Time: From the calculation, it is defined that there is a direct equivalence existing between the RGR and Dt. If the number of contributions of a subject doubles, from 2009-2019, then the difference between the logarithm of the numbers at the starting and at the last of the

period must be the logarithms of the number 2. If one uses a natural logarithm, this difference has a value of 0.693. **(**Shukla & Verma, 2019)

Doubling Time Dt = 0.693/R

Table 3 indicates that the maximum RGR 2.50 was recorded in the year 2019, followed by 2.32 and 2.21 RGR which were recorded in the year 2018 and 2016 respectively. The highest doubling time 1.04 was recorded in the year 2010, followed by 0.59 Dt which was recorded in the year 2011.

Table 3: Relative Growth Rate and Doubling Time of Publication

Year	No. of Publication	Cumulative Publication	W1	W2	RGR	Mean of RGR	DT	Mean of Dt
2009	72	72	-	4.28	-	1.71	-	0.47
2010	68	140	4.28	4.94	0.66		1.04	
2011	78	218	4.22	5.38	1.16		0.59	
2012	93	311	4.36	5.74	1.38		0.50	
2013	100	411	4.53	6.02	1.49		0.47	
2014	109	520	4.61	6.25	1.65		0.42	
2015	77	597	4.69	6.39	1.70		0.41	
2016	106	703	4.34	6.56	2.21		0.31	
2017	86	789	4.66	6.67	2.01		0.35	
2018	84	873	4.45	6.77	2.32		0.30	
2019	148	1021	4.43	6.93	2.50		0.28	

5.4 Productivity of Countries and Collaboration Analysis

5.4.1 Top 10 Productive Countries

Table 4 presents the open access research publications on Hantavirus by top 10 most productive countries during the year 2009 to 2019 with the publication rank. The United States tops the list with highest number of 361, (35.36%) publications during the period taken here for study. China contributed 129, (12.63%) publications and ranked second in the list followed by Germany and Brazil in the third and fourth position with 115, (11.26%) and 98, (9.60%) numbers of publication respectively.

Table 4: Top 10 Productive Country

Country	No. of Publication	Share(%)	Rank (Publication)
United States	361	35.36	1st
China	129	12.63	2nd
Germany	115	11.26	3rd
Brazil	98	9.60	4th
Finland	82	8.03	5th
Sweden	75	7.35	6th
United Kingdom	64	6.27	7th
France	62	6.07	8th
Chile	58	5.68	9th
South Korea	48	4.70	10th

5.4.2 Citation analysis and collaboration of countries

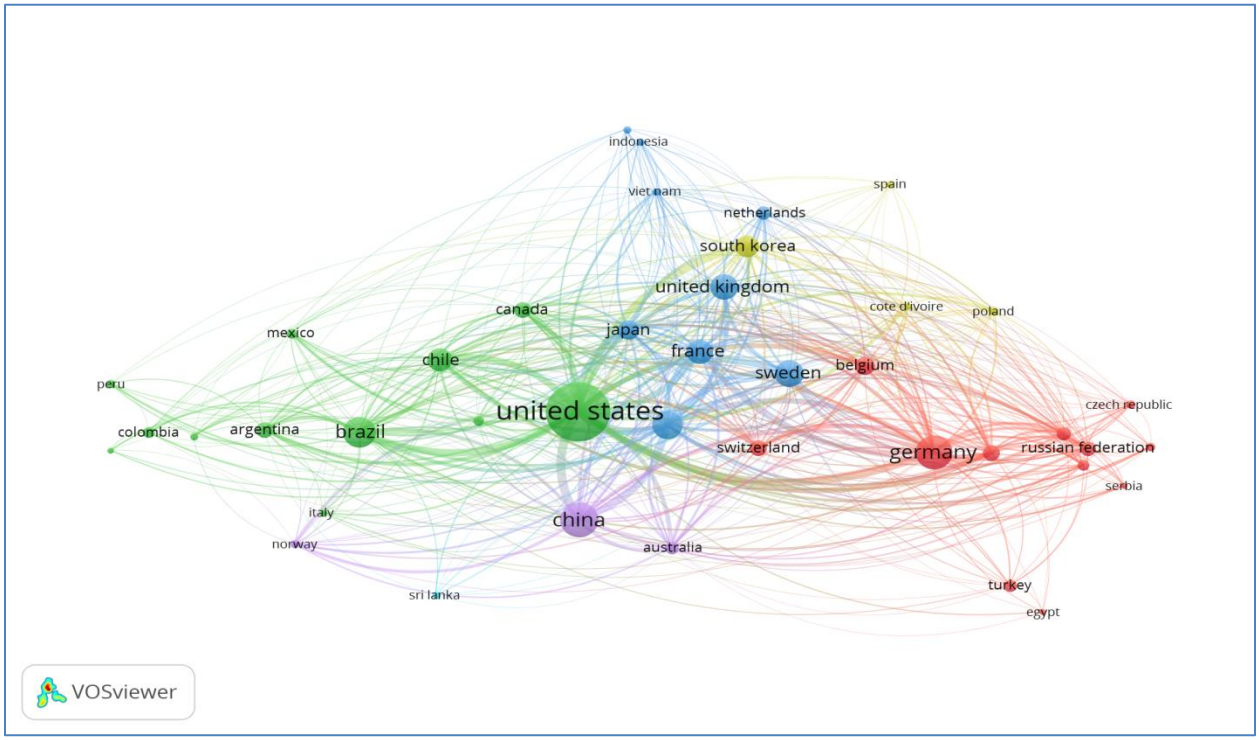
Table 5 lists the citation of top 15 countries on open access Hantavirus research from 2009 to 2019. As expected, Unites states (361) is in the top of the list of countries with highest 8405 citations followed by Finland (82) and China (129) in the 2nd and 3rd position with 2366 and 2162 citations respectively. Though United States tops the list in both highest no. of publication and citation, Australia (17) which citation rank is 12th have the highest citation per publication (44.65%) followed by Finland and Slovakia with 28.85 and 25.44 citation per publication.

Table 5: Citation Analysis of the Countries

Country	No. of Publication	Citation	Citation Rank	Citation per Publication
United states	361	8405	1st	23.28
Finland	82	2366	2nd	28.85
China	129	2162	3rd	16.76
Germany	115	2057	4th	17.89
United Kingdom	64	1551	5th	24.23
Brazil	98	1503	6th	15.34
Sweden	75	1043	7th	13.91
France	62	990	8th	15.97
Chile	58	849	9th	14.64
Belgium	37	845	10th	22.84

South Korea	48	793	11th	16.52
Australia	17	759	12th	44.65
Japan	38	701	13th	18.45
Slovakia	27	687	14th	25.44
Canada	27	625	15th	23.15

Figure 2: Network Visualization of Collaboration of Countries



5.5 Productivity of Authors and Collaboration analysis

5.5.1 Top 10 Productive Authors

Table 6 presents the open access research publications on Hantavirus by top 10 most productive Authors during the year of 2009 to 2019. From the table it can be stated that Vaheri A. is in the 1st position with total 42, (4.11%) of publication, while Vapalahti O. and Yanagihara R. are in the 2nd position with total 30, (2.94%) of publication followed by Zhang Y. in the 3rd position with 28, (2.74%) numbers of total publication.

Table 6: Top 10 Productive Authors

Author	No. of Publication	Share (%)	Rank
Vaheri A.	42	4.11	1
Vapalahti O.	30	2.94	2
Yanagihara R.	30	2.94	2
Zhang Y.	28	2.74	3
Song J.-W.	27	2.64	4
Gu S.H.	26	2.55	5
Klempa B.	26	2.55	5
Arikawa J.	24	2.35	6
Yoshimatsu K.	24	2.35	6
Ahlm C.	23	2.25	7
Klingström J.	22	2.15	8
Krüger D.H.	22	2.15	8
Henttonen H.	20	1.96	9
Ulrich R.G.	20	1.96	9
Figueiredo L.T.M.	19	1.86	10

5.5.2 Citation analysis and collaboration of Authors

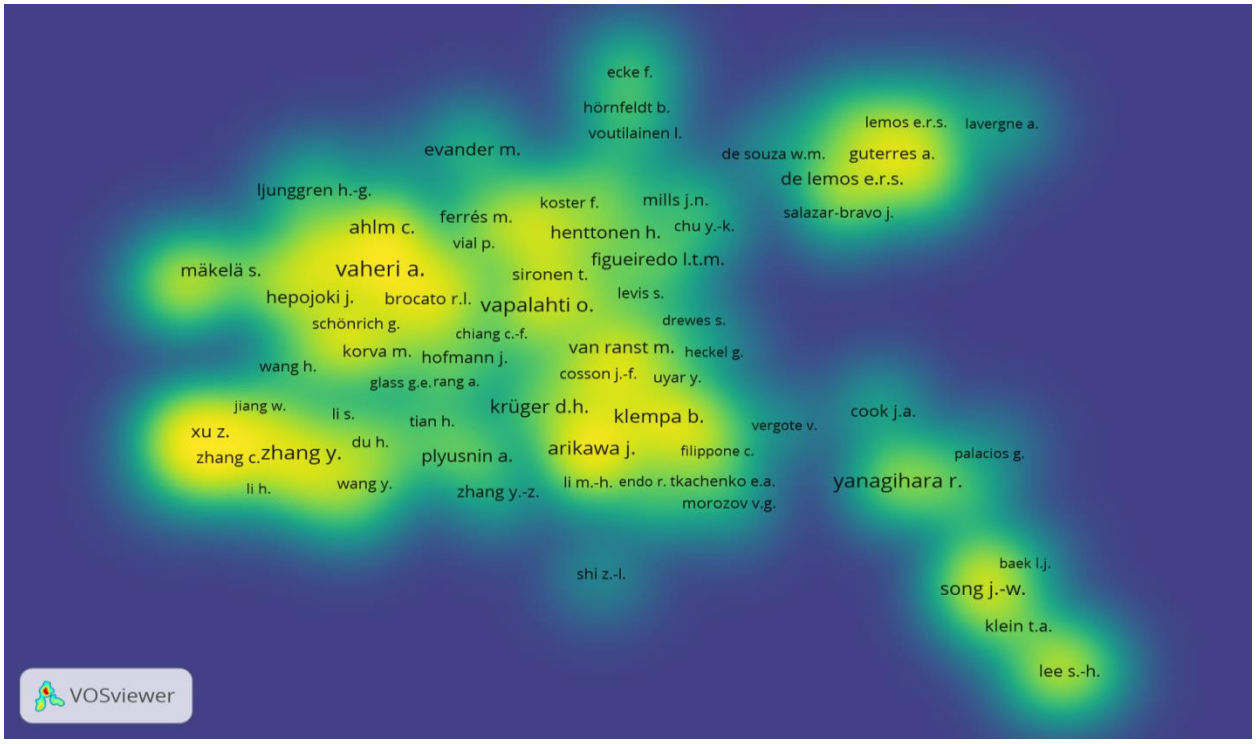
Table 7 lists the top 10 authors with highest numbers of citations. It is seen from table 7 that Vapalahti O. is in the 1st position of the list with highest number of citation i.e. 1027 numbers of citation followed by Vaheri A and Figueiredo L.T.M. in the 2nd and 3rd position with 850 and 770 numbers of citation respectively. Though the author Jonsson C. B. has only 13 numbers of total publications, he has the highest citation per publication i.e. 57 followed by Zhang Y.-Z and Figueiredo L.T.M. in the 2nd and 3rd position with 51 and 40.53 citation per publication respectively.

Table 7: Citation Analysis of Authors

Author	No. of Publication	Citations	Rank (Citation)	Citation per Publication
Vapalahti O.	30	1027	1st	34.23
Vaheri A.	42	850	2nd	20.24
Figueiredo L.T.M.	19	770	3rd	40.53
Yanagihara R.	30	765	4th	25.5

Jonsson C.B.	13	741	5th	57
Klempa B.	26	680	6th	26.15
Song J.-W.	27	604	7th	22.37
Plyusnin A.	16	548	8th	34.25
Henttonen H.	20	530	9th	26.5
Zhang Y.-Z.	10	510	10th	51

Figure 3: Density Visualization of Collaboration of Authors



5.6 Document wise Distribution of Publication

Total 1,021 numbers of open access publication on “Hantavirus” were categorized under 9 document types published from 2009 to 2019 (Table 8). Among the total publications, 813, (79.62%) were article followed by Review 109, (10.67%) and letter 47 (4.60%). 10 (0.97%) documents belonged to the category of editorial and erratum. Only 2, (0.19%) documents belonged to the category of book chapter.

Table 8: Document wise Publication

Document Type	No. of Publication	Share (%)
Article	813	79.62
Review	109	10.67
Letter	47	4.60
Note	15	1.46
Editorial	10	0.97
Erratum	10	0.97
Short Survey	9	0.88
Conference Paper	6	0.58
Book Chapter	2	0.19

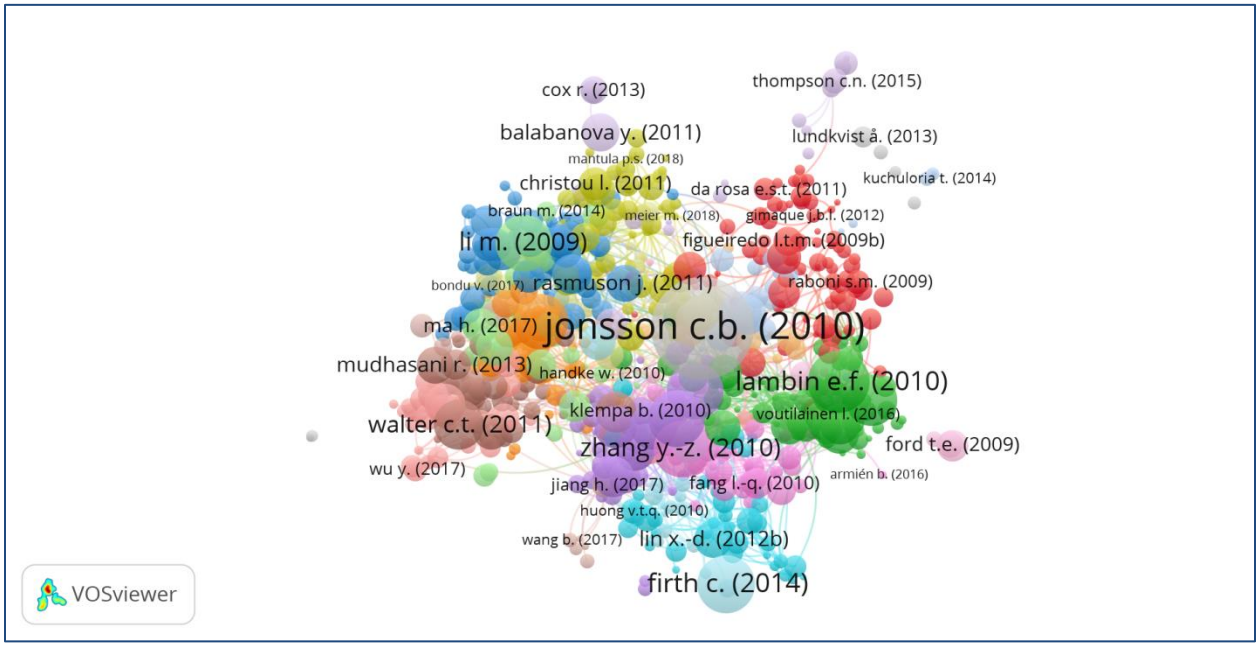
5.7 Highly Cited Documents

Table 9 lists the top 10 highly cited document on open access Hantavirus research work during the year 2009 to 2019 based on Scopus database. From the table it is seen that Jonsson C.B. (2010) tops the list with highest 527 numbers of citation followed by Lambin E.F. (2010) in the second position and and Firth C. (2014) in the third position with 198 and 172 numbers of total citation respectively.

Table 9: Highly Cited documents

Document	Citations
Jonsson c.b. (2010)	527
Lambin e.f. (2010)	198
Firth c. (2014)	172
Myers s.s. (2013)	172
Guo w.-p. (2013)	165
Zhang y.-z. (2010)	164
Ramsden c. (2009)	164
Li m. (2009)	162
Trombley a.r. (2010)	156
Suzán g. (2009)	131
Walter c.t. (2011)	125
Reineke l.c. (2013)	119

Figure 4: Network Visualization of Document Collaboration



5.8 Top 10 Subject Areas

Table 10 shows the list of top 10 domain subject areas on open access Hantavirus research publication during the year 2009 to 2019. From the table it is observed that majority of 665, (65.13%) numbers of publications were found from the subject area “Medicine” followed by the subject areas “Immunology and Microbiology” and “Agricultural and Biological Sciences” with 428, (41.92%) and 178 (17.43%) respectively. From the table it is also seen that only 9, (0.88%) publications were found from the subject area “Mathematics” on hantavirus research during the period of study.

Table 10: Top 10 Subject Areas

Rank	Subject Area	No. of Publication	Share (%)
1	Medicine	665	65.13
2	Immunology and Microbiology	428	41.92
3	Agricultural and Biological Sciences	178	17.43
4	Biochemistry, Genetics and Molecular Biology	164	16.06

5	Multidisciplinary	74	7.25
6	Environmental Science	53	5.19
7	Veterinary	26	2.55
8	Pharmacology, Toxicology and Pharmaceutics	15	1.47
9	Computer Science	10	0.98
10	Mathematics	9	0.88

5.9 Top 10 Affiliation

Table 11 lists the top 10 affiliation contributed on open access Hantavirus research work during the year 2009 to 2019. It is observed from the table 11 that Helsingin Yliopisto is in the 1st position with highest numbers of total 72, (7.05%) publication followed by CharitÃ© â€“ UniversitÃ¤tsmedizin Berlin in the 2nd position with 48, (4.70%) numbers of total publication. University of Helsinki Haartman Institute and and Centers for Disease Control and Prevention has contributed same numbers of publication on Hantavirus research i.e. 43, (4.21%) each.

Table 11: Top 10 Affiliation

Rank	Affiliation	No. of Publication	Share (%)
1	Helsingin Yliopisto	72	7.05
2	CharitÃ© â€“ UniversitÃ¤tsmedizin Berlin	48	4.70
3	University of Helsinki Haartman Institute	43	4.21
3	Centers for Disease Control and Prevention	43	4.21
4	Universidade de Sao Paulo - USP	36	3.53
4	The University of New Mexico	36	3.53
5	Fundacao Oswaldo Cruz	35	3.43
6	The Fourth Military Medical University	34	3.33
7	Karolinska Institutet	33	3.23
8	UmeÃ¥ Universitet	31	3.04
9	National Institutes of Health NIH	30	2.94
9	U.S. Army Medical Research Institute of Infectious Diseases	30	2.94
9	University of HawaiÊ»i at MÄ□noa	30	2.94
10	Korea University	28	2.74
10	John A. Burns School of Medicine	28	2.74

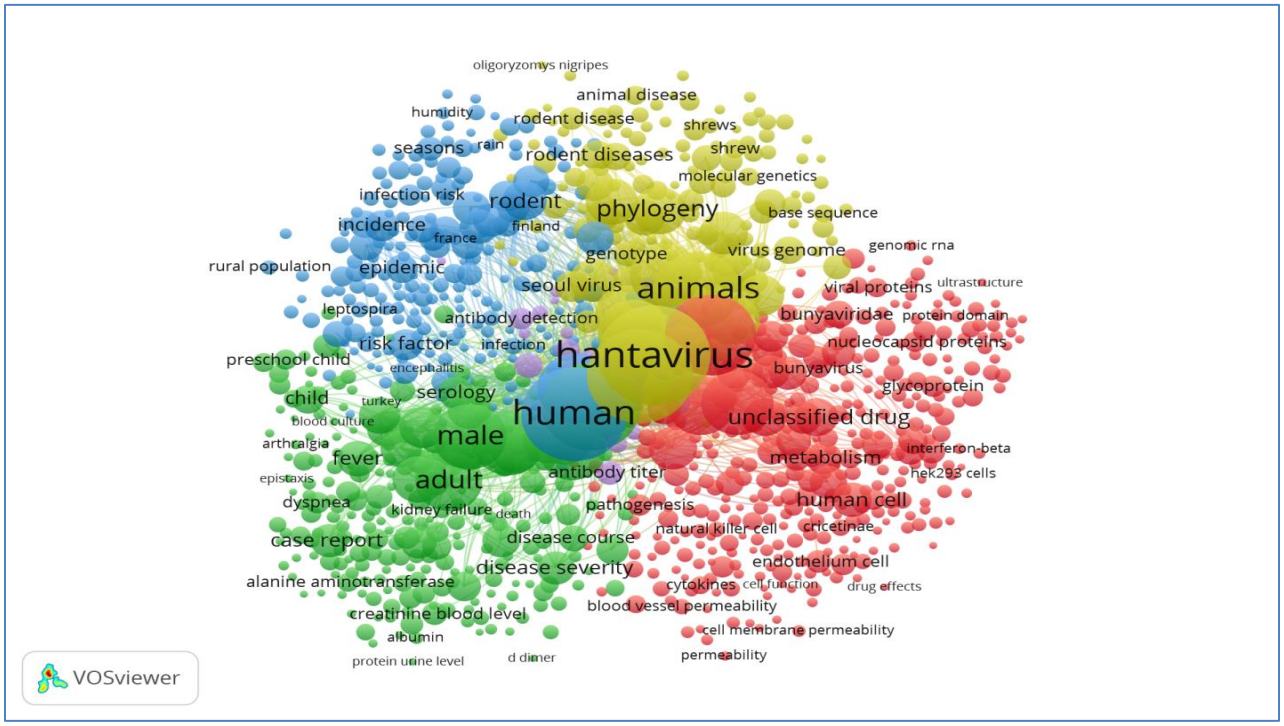
5.11 Mapping the Occurrences of Keywords

The table 12 lists the top 15 keywords used in the Hantavirus research during the year 2009-2019. From the table, it is seen that, the keyword “Hantavirus”ranked first with 780 times of occurrence which means that the keyword “Hantavirus”was used 780 times in different research on Hantavirus during the period of the study taken here for analysis by the different authors, while the keywords“article”and “Human”are in the 2nd and 3rd position with 694 and 686 times of occurrences respectively.

Table 12: Occurrences of Keywords

Keywords	Frequency of Occurrences
Hantavirus	780
Article	694
Human	686
Humans	616
Nonhuman	511
Animals	452
Hantavirus infection	393
Male	338
Virology	327
Controlled study	322
Female	318
Animal	309
Adult	282
Hemorrhagic fever with renal syndrome	281
Hantavirus infections	279

Figure 5: Network Visualization of Co-occurrences of Keywords



6. Findings and Conclusion

Scientometrics is concerned with the quantitative features and characteristics of science and scientific research. It is a distinctive set of systems that is used for different purposes such as analyzing scientific output, determination of diverse scientific indicators, monitoring and evaluating of information resources, etc. The study was an attempt to analyze the open access research trends on Hantavirus research during the year 2009 to 2019 indexed in Scopus database. A total of 1023 records were extracted from the Scopus database, after excluding the duplicate records, total 1021 records were taken for the analysis and the selected data were analyzed using different scientometric tools.

Based on the analysis undertaken this present study reveals the following findings:

- From the study it can be stated that the highest 148, (14.5%) publications were published in the year 2019 and the lowest 68, (6.66%) publications were published in the year 2010 during the period of study.

- The maximum AGR 76.19% was recorded in the year 2019 and the lowest -29.36% AGR was calculated in the year 2015. The RGR increased from the year 2010 to 2016 and it decreased in the year 2017 and again it increased in the year 2018 and 2019.
- As expected United states is the top contributing country with total 361 (35.36%) numbers of publication as well as the country with highest 8405 citations. China is in the 2nd position with 129 (12.63%) numbers of total publications.
- Vaheri A. is the top contributing author with total 42, (4.11%) of publication, while Vapalahti O. and Yanagihara R. are in the 2nd position with total 30, (2.94%) of publication followed by Zhang Y. in the 3rd position with 28, (2.74%) numbers of total publication.
- Though Vaheri A is in the 1st position with highest publication, Vapalahti O. has the highest numbers of citations i.e. 1027 in total.
- Most of the publications are in the form of article 813 (79.62%) followed by Review 109, (10.67%) and letter 47 (4.60%).
- The document Jonsson C.B. (2010) has the highest 527 numbers of citation followed by Lambin E.F. (2010) with total 198 numbers of citation.
- Medicine is the top contributing subject area with total 665 (65.13%) contributions towards Hantavirus research.
- Hantavirus, article, human, nonhuman, animals, Hantavirus infection are the commonly used keywords by different authors on Hantavirus research publication during the year 2009 to 2019.

When the global pandemic Corona virus had just started, there was one more virus was in news i.e. Hantavirus. Though the mortality rate of this virus infection is much more than corona virus, it is less likely to transmit in human beings unlike corona virus. From the above discussion, it can be assumed that since the year 2019 is the most contributing years on open access Hantavirus research work, in 2020 and in the next coming years, there will be carried out more and more research work on the topic Hantavirus by different authors of different countries than that of the previous years. There can be expected more and more citations of different documents, authors and countries. The researchers are highly interested in publishing their research work in the subject medicine. The findings of this present scientometric study will help the scientist, medical

professionals and researchers who are involved in the research work related to Hantavirus in future.

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